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EXAMINER	
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ART UNIT	PAPER NUMBER
2476	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/613,531	GROVER ET AL.	
	Examiner	Art Unit	
	SALMAN AHMED	2476	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-13* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *7/2/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-4, 6-10 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grover (US6421349) and Zimmel et al. (US PAT PUB 2003/0055918, hereinafter Zimmel).

Regarding claim 1, Grover discloses a method of providing a mesh telecommunications network with spare capacity arranged in pre-configured cycles, where the mesh telecommunications network includes multiple cycles that may be potentially configured to provide restoration paths (column 11 lines 1-5, 10-14 and abstract, the algorithm is distributed in the sense that its execution is spread amongst

the significant processing power present in the DCS machines which form a mesh network's nodes. This DCPC algorithm is based on the self-healing network (SHN) protocol described in U.S. Pat. No. 4,956,835 issued Sep. 11, 1990. Both the SHN protocol and the DCPC method implement a distributed algorithm which generates efficient path sets for span restoration and both use statelet based processing. A Method for restoring traffic in a network. The network includes plural distinct nodes interconnected by plural distinct spans, each span having working links and spare links. Each node has a digital cross-connect switch for making and breaking connections between adjacent spans forming span pairs at a node. Cross-connections between spare links in adjacent spans are made such that sets of successive nodes through which the adjacent spans form span paths form closed paths), • pre-selecting a set of candidate cycles for forming into pre-configured cycles allocating working paths and spare capacity in the mesh telecommunications network, the set of candidate cycles comprising a sub-set of the multiple cycles selected based on one or more selection criteria (see col. 6 lines 54-59 a preconfigured crossconnection is a crossconnection at a node which is preset (i.e. pre-selected) between spare links in statistical anticipation of a span failure. A PC plan is the network wide state of all preconfigured crossconnections and the spare links which then interconnect and col. 3 lines 14-39; candidate cycles is not further specified therefore it is broadly interpreted. In column 4 lines 1-10 and 49-51, Grover teaches in a further aspect of the invention, a closed path is formed by making cross-connections between successive spans in one of several routes followed by incoming statelets received by an originating node, which one of

several routes may be selected according to an ordering of fields (i.e. based on one or more selection criteria) in the incoming statelets. The ordering may be based upon a relationship (i.e. based on one or more selection criteria) between the number of paths available for restoration of telecommunications traffic along the successive nodes by which each incoming statelet has been broadcast and the number of spans traversed by the respective incoming statelets (i.e., based on one or more selection criteria). In a further aspect of the invention, the selected one of the distinct routes is selected according to an ordering of the distinct routes (i.e., based on one or more selection criteria). Grover shows, FIGS. 16A-16F show examples of patterns which result in a sample network using the DCPC with closed path order in descending node total working links with sparing patterns generated by IP2-closed path (defined below); FIGS. 17A-17E are examples of patterns which result in a sample network using the DCPC with closed path order in increasing node total working links with the sparing plane. generated by IP2-closed path. Grover teaches in column 21, lines 5-22 and 42-54, Globally, the DCPC protocol executes in the following manner. Each node in the network takes a turn at being the originating node in an order which is predetermined and is stored locally within the nodes. As each node assumes the role of the originating node, it iteratively generates closed paths, using the rules outlined in the previous section, until it can either no longer generate a closed path or the closed paths that it can generate all receive a zero score. At this point the current originating node gives up the role and signals the next node in the series to become the originating node. The new originating node generates as many closed paths as it can until it too is no longer

able to generate useful closed paths. The preconfigured closed paths generated by each node alter the network's configuration as it is seen by later originating nodes. The role of the originating node is successively assumed by all the network nodes and when the last node has terminated its role as the originating node, preconfigured closed path generation stops. A node order with which this algorithm may be used is determined by the total number of working links falling on each network node (i.e. based on one or more selection criteria). Each network node has a total generated of the number of working links contained in the spans which fall on it. The order in which the nodes assumed the role of the originating node is generated by sorting the nodes in descending order of the calculated working links total. The reverse order is also run to evaluate any performance difference between the two orders. The node's working link total is used to determine the originating node ordering since it seems reasonable that if a node terminates a large number of working links then it should receive an early opportunity to form a part of the PC closed paths generated); • determining a joint allocation of working paths and spare capacity in the mesh telecommunications network based on the set of candidate cycles (see col. 6 line 53 - col. 7 line 26 and abstract the restorability when using a KSP algorithm to calculate a restoration pathset for each of the networks failed spans with the given numbers of spare links (i.e. joint allocation) col. 4 lines 25-44); and • providing the mesh telecommunications network with spare capacity arranged in pre-configured cycles according to the allocation determined in the preceding step (see col. 7 lines 6-25 and col. 7 lines 50-65, a Method for restoring traffic in a network. The network includes plural distinct nodes interconnected by plural distinct

spans, each span having working links and spare links. Each node has a digital cross-connect switch for making and breaking connections between adjacent spans forming span pairs at a node. Cross-connections between spare links in adjacent spans are made such that sets of successive nodes through which the adjacent spans form span paths form closed paths).

Grover does not explicitly teach in the cited portions of Grover prior art pre-selecting a set of candidate cycles for forming into pre-configured cycles before determining a joint allocation of working paths and spare capacity.

Grover in the same prior art but different embodiment teaches selecting a set of candidate cycles for forming into pre-configured cycles before determining a joint allocation of working paths and spare capacity (columns 21-23 lines 55-44, as an initial evaluation of the potential of realizing an algorithm, which could generate preconfigured closed path designs in a distributed manner, a simple simulation approach was taken. The distributed protocol was simulated in an iterative manner with the state of the current iteration being determined by only the state of the previous iteration. In each iteration, the outgoing statelet broadcast pattern, for each network node, is generated on the basis of the node's incoming statelet broadcast pattern in the previous iteration. Each node then assumes its newly calculated broadcast pattern simultaneously and in lockstep. Successive iterations are generated in a similar manner. This simulation method approximates the case where a network's statelet insertion delay is large compared to the statelet processing delay. Insertion delay is due to the time required to transmit a statelet through a limited bandwidth communication channel while processing

delay is due to the time required by the computation element present in each node to process incoming statelet events. As an example of the iterative nature of the simulation, FIG. 12 contains a plot of the score of the best received incoming statelet, by the current originating node, versus the simulation iteration. In the plot, four distinct structures appear; each structure corresponds to the search and construction of a single PC closed path. At the left most edge of each structure, the plot can be seen to start at zero and then step up. Each step corresponds to the arrival of an incoming statelet with a superior score and an improvement to the best candidate closed path received by the originating node. The structure then plateaus which corresponds to the originating node's timer counting down (the timer was set to countdown 50 iteration.) When the timer counts out, the originating node initiates the construction of the closed path and resets the best received score to zero (this corresponds to the right edge of each structure.) Although, the graph goes up to only 300 iterations, the actual simulation continued for 500 more iterations. However, no more PC closed paths were possible within the network after the construction of the fourth closed path and, so, the plot remains at zero after this point. FIGS. 13A-13H show examples of the successive displacement of the best received closed path candidate as a originating node samples the incoming statelets generated by the evolving statelet broadcast. The statelet broadcast, from which the incoming signatures containing these closed paths originate, is the broadcast represented by the left most structure in FIG. 12. The arrival of each superior incoming signature, can be seen as a step in the left most edge of this structure. During the evolution of the statelet broadcast, 8 superior incoming statelets

arrive at the originating node (superior in the sense that their score is better than that of any previously received statelet.) Each closed path in FIGS. 13A-13H corresponds to the closed path contained within a superior incoming statelet and the score above the closed path corresponds to the statelet's score. The originating node shown in each of FIGS. 13A and 13H is shown in bold, while the bold closed path in each figure is the best received closed path. The closed paths are ordered in the same order of arrival as the superior statelet to which each closed path corresponds. After the arrival of the 8the superior statelet, no more incoming statelets with better scores appear at the originating node. Eventually, the originating node's timer times out and the the closed path, as the best received closed path, is formed within the network's spare capacity (i.e. a joint allocation of working paths and spare capacity). FIGS. 14A-14D, and 15A-15D show how a PC pattern that is generated in Net1 by the DCPC, with originating node order sorted in order of decreasing total node working links and increasing total node working links, respectively. Table 4 contains the network restorability results, for the decreasing order case, over all possible span failures for restoration using only conventional KSP restoration, restoration using only pure PC paths, and two-step restoration. Table 6 contains the restorability results for the increasing order case. Table 5 contains the total crossconnection events, for the decreasing order case, over all possible failed spans, for KSP restoration alone and for 2-step restoration. The crossconnection results for the increasing order case is presented in Table 7. Grover further teaches the joint allocation of working paths and spare capacity (see col. 7 lines 18-26, The "2-step" restorability of a network is the total network restorability when all useful PC paths are first applied to

the span failure and, if needed, additional on-demand (2nd step) KSP paths are found within the unallocated spare capacity of the PC plan plus any pruned spare capacity from the PC restoration step).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to in Grover's system/method the steps of performing simulation for selecting of candidate cycles for forming into pre-configured cycles before allocating working paths and spare capacity as suggested by Grover. The motivation is that using simulations network designers/administrators can study the relationships between nodes/links/paths in detail and can simulate the projected consequences of multiple network design options before having to implement the actual network in the real-world; as it is possible to easily compare alternative network designs so as to select the optimal network system; wherein actual steps of developing the path/link/traffic/failure simulation can itself provide valuable insights into the inner workings of the network nodes/links/paths which can in turn be utilized at a later stage for optimizing the network. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Grover implicitly teaches selecting a set of candidate cycles for forming into pre-configured cycles before determining a joint allocation of working paths and spare capacity in the mesh telecommunications network, and determining a joint allocation of

working paths and spare capacity based on the set of candidate cycles, but does not explicitly teach candidate cycles.

Zimmel in the same or similar field of endeavor teaches candidate cycles (paragraphs 0055, 0057. 0070-0071 and claim 23).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to in Grover's system/method the concepts of candidate cycles as suggested by Zimmel. The motivation is that (paragraph 0032-0033 Zimmel) such method enables picking a cycle to place equipment on and routing demands on the cycle. Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Regarding claim 3, Grover teaches pre-selecting candidate cycles includes ranking a set of closed paths in the mesh telecommunications network according to the degree to which each closed path protects spans on and off the closed path by comparison to the cost of the closed path, and selecting candidate cycles from the set of closed paths (see col. 9 lines 10-40, col. 13 lines 22-42 and table 3).

Regarding claim 4, Grover teaches ranking of closed paths takes into account the cost of the closed path (see col. 9 lines 35).

Regarding claim 6, Grover teaches allocation of spare capacity is carried out using an integer linear programming (ILP) formulation, where an objective function minimizes the total cost of spare capacity (see col. 8 lines 9-14).

Regarding claim 7, Grover teaches the objective function is subject to the constraints: A. All lightpath requirements are routed (see col. 8 lines 27 - col. 9 line 40); B. Enough channels are provided to accommodate the routing of lightpaths in A (see col. 9 lines 13). C. The selected set of pre-configured cycles give 100% span protection (see col. 9 lines 14). D. Enough spare channels are provided to create the pre-configured cycles needed in C (see col. 9 lines 10-16). E. The pre-configured cycles decision variables and capacity are integers (see col. 9 lines 47-52).

Regarding claim 8, Grover teaches allocation of spare capacity is carried out using an integer linear programming (ILP) formulation (see col. 8 lines 9-14), where the objective function minimizes (see col. 8 lines 23) the total cost (see col. 9 lines 35) of spare capacity and working capacity (see col. 8 lines 13 - col. 9 line 40).

Regarding claim 9, Grover teaches disclose all the limitations as discussed in the rejection of claim 7 and is therefore claims 9 is rejected using the same rationales.

Regarding claim 10, Grover teaches a mixed selection strategy is used for pre-selecting candidate cycles (see col. 8 lines 9 - col. 9 line 60).

Regarding claim 12, Grover teaches the mixed selection strategy includes selecting candidate cycles based on absolute number of straddling spans protected by the candidate cycles (see col. 4 lines 1-11).

Regarding claim 13, Grover teaches telecommunications network designed (see col. 2 line 62).

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grover and Zimmel and further in view of Suet al. (US2002/0163682).

Regarding claim 11, Grover disclose all the subject matter of the claimed invention with the exception of the mixed selection strategy includes selecting candidate cycles randomly.

Suet al. from the same or similar fields of endeavor teaches the use of randomly select path (see Suet al. paragraph 39).

Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the randomly select path as taught by Su et al. in distributed pre-configuration of spare capacity in closed paths for network restoration of Grover in order to provide ability to create a resource-efficient backup path (see Suet al. paragraph9). Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

Allowable Subject Matter

5. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments see pages 5-13 of the Remarks section, filed 7/16/2010, with respect to the rejections of the claims have been fully considered and are not persuasive.

7. Applicant argues (see page 8) there is no (in Grover prior art) "joint allocation of working paths and spare capacity in the mesh telecommunications network based on the set of candidate cycles," as claimed in Claim 1.

8. However, Examiner respectfully disagrees with Applicant's assertion. Grover does indeed teach the cited limitations. Specifically, Grover teaches the joint allocation of working paths and spare capacity (see col. 7 lines 18-26, The "2-step" restorability of a network is the total network restorability when all useful PC paths are first applied to the span failure and, if needed, additional on-demand (2nd step) KSP paths are found within the unallocated spare capacity of the PC plan plus any pruned spare capacity from the PC restoration step).

9. Applicant argues (see page 9) that in Grover, there is neither pre-selection of candidate cycles before determining a joint allocation of working paths and spare capacity, nor determining a joint allocation of working paths and spare capacity to those cycles, nor does Grover teach or suggest such an approach.

10. However, Examiner respectfully disagrees with Applicant's assertion. Grover does indeed teach the cited limitations. Specifically, Grover teaches pre-selecting a set of candidate cycles for forming into pre-configured cycles allocating working paths and spare capacity in the mesh telecommunications network the set of candidate cycles comprising a sub-set of the multiple cycles selected based on one or more selection criteria (see col. 6 lines 54-59 a preconfigured crossconnection is a crossconnection at a node which is preset (i.e. pre-selected) between spare links in statistical anticipation of a span failure. A PC plan is the network wide state of all preconfigured

crossconnections and the spare links which then interconnect. In column 4 lines 1-10 and 49-51, Grover teaches in a further aspect of the invention, a closed path is formed by making cross-connections between successive spans in one of several routes followed by incoming statelets received by an originating node, which one of several routes may be selected according to an ordering of fields (i.e. based on one or more selection criteria) in the incoming statelets. The ordering may be based upon a relationship (i.e. based on one or more selection criteria) between the number of paths available for restoration of telecommunications traffic along the successive nodes by which each incoming statelet has been broadcast and the number of spans traversed by the respective incoming statelets (i.e., based on one or more selection criteria). In a further aspect of the invention, the selected one of the distinct routes is selected according to an ordering of the distinct routes (i.e., based on one or more selection criteria). Grover teaches in column 21, lines 5-22 and 42-54, Globally, the DCPC protocol executes in the following manner. Each node in the network takes a turn at being the originating node in an order which is predetermined and is stored locally within the nodes. As each node assumes the role of the originating node, it iteratively generates closed paths, using the rules outlined in the previous section, until it can either no longer generate a closed path or the closed paths that it can generate all receive a zero score. At this point the current originating node gives up the role and signals the next node in the series to become the originating node. The new originating node generates as many closed paths as it can until it too is no longer able to generate useful closed paths. The preconfigured closed paths generated by each node alter the

network's configuration as it is seen by later originating nodes. The role of the originating node is successively assumed by all the network nodes and when the last node has terminated its role as the originating node, preconfigured closed path generation stops. A node order with which this algorithm may be used is determined by the total number of working links falling on each network node (i.e. based on one or more selection criteria). Grover in the same prior art but different embodiment teaches selecting a set of candidate cycles for forming into pre-configured cycles before determining a joint allocation of working paths and spare capacity (columns 21-23 lines 55-44, as an initial evaluation of the potential of realizing an algorithm, which could generate preconfigured closed path designs in a distributed manner, a simple simulation approach was taken. The distributed protocol was simulated in an iterative manner with the state of the current iteration being determined by only the state of the previous iteration. In each iteration, the outgoing statelet broadcast pattern, for each network node, is generated on the basis of the node's incoming statelet broadcast pattern in the previous iteration. Each node then assumes its newly calculated broadcast pattern simultaneously and in lockstep. Successive iterations are generated in a similar manner. This simulation method approximates the case where a network's statelet insertion delay is large compared to the statelet processing delay. Insertion delay is due to the time required to transmit a statelet through a limited bandwidth communication channel while processing delay is due to the time required by the computation element present in each node to process incoming statelet events. As an example of the iterative nature of the simulation, FIG. 12 contains a plot of the score of

the best received incoming statelet, by the current originating node, versus the simulation iteration. In the plot, four distinct structures appear; each structure corresponds to the search and construction of a single PC closed path. At the left most edge of each structure, the plot can be seen to start at zero and then step up. Each step corresponds to the arrival of an incoming statelet with a superior score and an improvement to the best candidate closed path received by the originating node. The structure then plateaus which corresponds to the originating node's timer counting down (the timer was set to countdown 50 iteration.) When the timer counts out, the originating node initiates the construction of the closed path and resets the best received score to zero (this corresponds to the right edge of each structure.) Although, the graph goes up to only 300 iterations, the actual simulation continued for 500 more iterations. However, no more PC closed paths were possible within the network after the construction of the fourth closed path and, so, the plot remains at zero after this point. FIGS. 13A-13H show examples of the successive displacement of the best received closed path candidate as a originating node samples the incoming statelets generated by the evolving statelet broadcast. The statelet broadcast, from which the incoming signatures containing these closed paths originate, is the broadcast represented by the left most structure in FIG. 12. The arrival of each superior incoming signature, can be seen as a step in the left most edge of this structure. During the evolution of the statelet broadcast, 8 superior incoming statelets arrive at the originating node (superior in the sense that their score is better than that of any previously received statelet.) Each closed path in FIGS. 13A-13H corresponds to the closed path contained within a

superior incoming statelet and the score above the closed path corresponds to the statelet's score. The originating node shown in each of FIGS. 13A and 13H is shown in bold, while the bold closed path in each figure is the best received closed path. The closed paths are ordered in the same order of arrival as the superior statelet to which each closed path corresponds. After the arrival of the 8the superior statelet, no more incoming statelets with better scores appear at the originating node. Eventually, the originating node's timer times out and the the closed path, as the best received closed path, is formed within the network's spare capacity (i.e. a joint allocation of working paths and spare capacity). Grover further teaches the joint allocation of working paths and spare capacity (see col. 7 lines 18-26, The "2-step" restorability of a network is the total network restorability when all useful PC paths are first applied to the span failure and, if needed, additional on-demand (2nd step) KSP paths are found within the unallocated spare capacity of the PC plan plus any pruned spare capacity from the PC restoration step). Therefore, Examiner respectfully disagrees with Applicant's assertion that Grover does not disclose pre-selecting a set of candidate cycles for forming into pre-configured cycles before determining a joint allocation of working paths and spare capacity as the allocation of working paths and spare capacity is already determined when candidate cycles are selected. Specifically, Grover teaches (columns 21-23 lines 55-44) as an initial evaluation of the potential of realizing an algorithm, <u>which could generate</u> <u>(i.e. which is not generated or pre-selected yet)</u> preconfigured closed path designs in a distributed manner, a simple simulation approach was taken. In fact, it is the <u>iterative steps</u> of the simulation that results in pre-selecting a set of candidate cycles

for forming into pre-configured cycles before determining a joint allocation of working paths and spare capacity. Contrary to Applicant's assertion, prior to simulation, the allocation of working paths and spare capacity is not already determined when candidate cycles are selected.

11. Examiner also respectfully disagrees with Applicant's interpretation of Grover, when Applicant states that (see page 10) if a person of ordinary skill in the art were to simulate a network according to the teachings of Grover, before determining an allocation of working paths and spare capacity, they would follow the teachings of Col. 21, line 55, to Col. 23, line 44, of Grover in which it is taught to apply the DCPC method to select candidate cycles to a simulated network already simulated as having fixed working paths and spare capacity. The person of ordinary skill in the art would then apply to the real network the working paths and spare capacity of the simulated network, and the results of the DCPC method on the simulated network. Examiner fails to understand the reasoning behind such conclusive statement made by the Applicant.

12. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

13. Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the amendments avoid such references or objections.

14. Applicant argues extensively regarding why simulation step is not obvious.

However, Examiner respectfully disagrees with Appellant's assertion. It would have been obvious to one having ordinary skill in the art at the time the invention was made to in Grover's system/method the steps of performing simulation for selecting of candidate cycles for forming into pre-configured cycles before allocating working paths and spare capacity as suggested by Grover. The motivation is that using simulations network designers/administrators can study the relationships between nodes/links/paths in detail and can simulate the projected consequences of multiple network design options before having to implement the actual network in the real-world; as it is possible to easily compare alternative network designs so as to select the optimal network system; wherein actual steps of developing the path/link/traffic/failure simulation can itself provide valuable insights into the inner workings of the network nodes/links/paths which can in turn be utilized at a later stage for optimizing the network.

Examiner submits that the following are some rationales which may be used when formulating a 103 rejection:

(1) Combining prior art elements according to known methods to yield predictable results.

(2) Simple substitution of one known element for another to obtain predictable results.

(3) Use of known techniques to improve similar devices (methods or products) in the same way.

(4) Applying a known technique to a known device (method or product) ready for improvement to yield predictable results.

(5) "Obvious to try" - choosing from a finite number of identified, predictable solutions.

(6) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces/market place incentives if the variations are predictable to one of ordinary skill in the art.

(7) The TSM test. (Although the Supreme Court cautioned against an overly rigid application of TSM, it also recognized that TSM was one of a number of valid rationales that could be used to determine obviousness)

Examiner respectfully submits that, Examiner has indeed met "articulated reasoning with some rational underpinnings" for the reasons as follows:

1) Examiner has shown, the combination based on TSM test - The motivation is that using simulations network designers/administrators can study the relationships between nodes/links/paths in detail and can simulate the projected consequences of multiple network design options before having to implement the actual network in the real-world; as it is possible to easily compare alternative network designs so as to select the optimal network system; wherein actual steps of developing the path/link/traffic/failure simulation can itself provide valuable insights into the inner workings of the network nodes/links/paths which can in turn be utilized at a later stage for optimizing the network.

2) Use of known techniques (steps of performing simulation for selecting of candidate cycles for forming into pre-configured cycles before allocating working paths and spare capacity) to improve (using simulations network designers/administrators can study the relationships between nodes/links/paths in detail and can simulate the projected consequences of multiple network design options before having to implement the actual network in the real-world; as it is possible to easily compare alternative network designs so as to select the optimal network system; wherein actual steps of developing the path/link/traffic/failure simulation can itself provide valuable insights into the inner workings of the network nodes/links/paths which can in turn be utilized at a later stage for optimizing the network) similar devices (methods or products of Grover) in the same way.

3) Known work (the steps of performing simulation for selecting of candidate cycles for forming into pre-configured cycles before allocating working paths and spare capacity) in one field of endeavor (one embodiment of Grover prior art) may prompt variations of it for use in either the same field or a different one (different embodiment of Grover prior art) based on design incentives (using simulations network designers/administrators can study the relationships between nodes/links/paths in detail and can simulate the projected consequences of multiple network design options before having to implement the actual network in the real-world; as it is possible to easily compare alternative network designs so as to select the optimal network system; wherein actual steps of developing the path/link/traffic/failure simulation can itself provide valuable insights into the inner workings of the network nodes/links/paths which

can in turn be utilized at a later stage for optimizing the network) or other market forces/market place incentives if the variations are predictable (selection of the optimal network system) to one of ordinary skill in the art.

Furthermore, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See In re Keller, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

15. Applicant argues that (see page 12) in Zimmel there is no <u>joint</u> allocation of working capacity and spare capacity.

16. Examiner respectfully submits that, it is Grover, not Zimmel that teaches joint allocation. Furthermore, Grover and Zimmel in combination teach the cited limitations; not Zimmel alone.

17. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

18. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SALMAN AHMED whose telephone number is (571)272-8307. The examiner can normally be reached on 9:00 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on (571)272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Salman Ahmed/

Primary Examiner, Art Unit 2476